



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/362,021	07/27/1999	ROBERT J. MEYER	D/96602	6311

7590 07/13/2004
JOHN E BECK
XEROX CORPORATION
XEROX SQUARE 20A
ROCHESTER, NY 14644

EXAMINER

VIDA, MELANIE M

ART UNIT PAPER NUMBER

2626

DATE MAILED: 07/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/362,021

Applicant(s)

MEYER ET AL.

Examiner

Melanie M Vida

Art Unit

2626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4,19,20 and 716 is/are rejected.
- 7) ☒ Claim(s) 8-10,12-15,17,18,21 and 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>9</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement(s) (IDS) submitted on 4/28/04 has been considered by the examiner and is attached to this office action.

Response to Amendment

2. This action is responsive to an amendment filed 4/28/04. **Claims 1, 4, 7, 8, 9, 10, 12-23** are pending. Applicants have amended independent **claims 1, 16, and 19**. Applicants have also amended dependent **claims 4, 7, 8, 9, 10, 12, 13, 14, 15, 17**. **Claims 18, 20, 21, and 22** are original claims. **Claims 2, 3, 5, 6, 11** have been cancelled. Additionally, the Examiner has received the Applicant's simulation and reviewed it prior to examination of the amended claims.

Response to Arguments

3. Applicant's arguments, see Paper No. 8, page 10, filed 4/28/04, with respect to **claims 1, 4, 12, 16, 17, 19, and 21** have been fully considered and are persuasive. First of all, the 112 rejections have been withdrawn because the applicants, indeed, have sufficient support in the disclosure for non-printing pixels, also known as black-auxiliary pixels in the specification, (see the specification on page 11). More specifically, the Examiner notes that the Applicants defined "auxiliary pixels" in the specification, as non-printing pixels that move the toner cloud toward or away from the photoreceptor in the neighborhood of an area to be developed. The Applicants also define "black auxiliary

Art Unit: 2626

pixels” (i.e. black non-printing pixels) are “ON” pixels in an otherwise “OFF” area on the exterior edge of an image shape, (see the specification on page 11, lines 5-11; and page 11, lines 31-35). Secondly, the 102 anticipation of October 2, 2003 has been withdrawn. It is agreed as the claims are now amended to overcome the Chung reference and **claims 2, 3, 5, 6, and 11** have been cancelled. However, upon further consideration, a new ground(s) of rejection of Abe in view of Chung et al. (US 5,835,123) is applied below.

This action is made final because the applicant's have amended the subject matter for the independent claims to include additional subject matter that required the Examiner to conduct a further search and consideration.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 1, 4, 7, 16, 19**, are rejected under 35 U.S.C. 103(a) as being unpatentable over Abe, US-PAT-NO: 5,740,330, (hereinafter, Abe) in view of Chung et al. US-PAT-NO: 5,835,123).

Regarding, **claim 1**, Abe, as shown in figure 13, depicts the contours of image elements, such as a character, are improved by alleviating jaggedness such as serrate edges to obtain a good quality image output from a low-resolution printer, which reads on

Art Unit: 2626

“an print image, comprising an original image of original pixels further comprising at least shape having at least one edge”, (col. 13, lines 17-19, and lines 55-61).

Further, Abe teaches the jaggedness (i.e. serrate edges) are anti-aliased by controlling the amount of light energy for each division of a pixel and using a Bezzie curve or a B-spline curve to approximate the area of black pixels, while deleting or adding sub-pixels to more closely approximate the curve enclosed area (4a) or (5a), as shown in figures 27 and 28, which reads on, to improve edge displacement or halo problems in the printing of the cell, (col. 8, lines 37-39; col. 11, lines 5-8, lines 30-45).

Abe does not expressly disclose, “black auxiliary pixels”, “where the black auxiliary pixels are substituted into the original image in proximity to the at least one edge and exterior of the at least one shape for said original pixels”.

However, Chung discloses a method for compensation of pixel aberrations by selecting pixels to be augmented and providing additional optical energy to the selected pixels that includes a non-printing black auxiliary pixel embedded in the font representation exterior to the font image shape to improve the development of font detail or solve leading edge depletion in printing of the font, which reads on “where black auxiliary pixels are substituted into the original image in proximity to the at least one edge and exterior of the at least one shape for said original pixels”, (col. 7, lines 9-20).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have modified Abe to include non-printing auxiliary pixel embedded in the font representation to improve the printing of the font as taught by Chung.

Art Unit: 2626

One of ordinary skill in the art would have been motivated to compensate for pixel aberrations by selecting pixels to be augmented and providing additional energy to the selected pixels, given the express suggestion of Chung, (see the abstract, and col. 7, lines 9-20).

Regarding, **claim 4**, Chung teaches of embedding black non-printing auxiliary pixels in the font representation exterior to the font image shape, which reads on “the black auxiliary pixels are adjacent to the at least one edge”, (col. 7, lines 9-20).

Regarding, **claim 7**, Chung teaches of embedding black non-printing auxiliary pixels in the font representation exterior to the font image shape, which reads on “the black auxiliary pixels are spaced from the at least one edge”, (col. 7, lines 9-20).

Regarding, **claim 16**, please refer to the corresponding rejection in claim 1.

Regarding, **claim 19**, please refer to the corresponding rejection in claim 1.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claim 20** is rejected under 35 U.S.C. 103(a) as being unpatentable over Abe, US-PAT-NO: 5,740,330, (hereinafter, Abe), in view of Chung et al. US-PAT-NO: 5,835,123) as applied to claim 19 above, and further in view of Gwaltney et al. US-PAT-NO: 6,456,394 B1, (hereinafter Gwaltney).

Art Unit: 2626

Regarding, **claim 20**, Abe in view of Chung teaches the method of claim 19, but they do not expressly disclose that the image processing system includes a digital front end.

However, Gwaltney discloses a computer workstation, which reads on a “digital front end”, (col. 4, lines 7-10).

At the time the invention was made it would have been obvious to one of ordinary skill in the art to have modified Abe in view of Chung with a digital front end.

One of ordinary skill in the art would have been motivated to have a digital front end such as a workstation to derive image data, given the express suggestion of Gwaltney, (col. 4, lines 7-10).

Allowable Subject Matter

8. **Claims 8, 9, 10, 12, 13, 14, 15, 17, 18, 21, 22** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record does not specifically disclose or inherently suggest claim 8, wherein the black auxiliary pixels are equally distance from the at least one edge; claim 9, black auxiliary pixels are at least one pixel distant from the at least one edge; claim 10, black auxiliary pixels are at least two pixels distant from the at least one edge; claim 12, black auxiliary pixels is substituted for a corresponding pattern of original pixels in the original image; claim 13, black auxiliary pixels is clustered about a shape edge found in the original image; claim 14, is allowed because of the clustered black auxiliary pixels are in a checkerboard pattern; claim 15, is allowed because a pattern of auxiliary black

Art Unit: 2626

pixels is a dispersed array close to the at least one edge; claim 17 is allowed because of the step of morphologically manipulating the original pixel data for embedding the black auxiliary pixels for original data pixels; claim 18 is allowed because of the step of storing, replicating, dilating, outlining, substituting, performing an OR operation; claim 21, is allowed for the step of morphologically manipulating the document image; claim 22 is allowed because of the steps of storing, replicating, dilating, outlining, substituting, and performing an OR operation.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Wibbels et al. US-PAT-NO : 6,606,470 B1, a color plane partial exposure for reducing edge effect such as white gaps (i.e. edge displacement).

Suzuki et al. US-PAT-NO : 5,299,308, divides edge pixels into sub-pixels and selectively decides among the sub-pixels whether or not they are painted in order to reduce edge jaggies.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

Art Unit: 2626

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie M Vida whose telephone number is (703) 306-4220. The examiner can normally be reached on 8:30 am 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kimberly A Williams can be reached on (703) 305-4863. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Melanie M Vida
Examiner

Application/Control Number: 09/362,021

Page 9

Art Unit: 2626

Art Unit 2626

MMV

mmv

July 1, 2004

KAWilliams
KIMBERLY WILLIAMS
SUPERVISORY PATENT EXAMINER